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ABSTRACT

Designed for instructional television (ITV) policy makers and funders, students and their teachers in communications faculties, and ITV project team members, this manual defines the makeup of an ITV project team and the particular and essential roles played by educators and television production staff as the project develops. Advice is given on how to avoid destructive conflict while nurturing creative conflict, and a model is presented which assumes that every task has a particular art, science, or technology associated with it. Each specialist's relationship to other team members is articulated throughout four production process phases: (1) conception through the first draft script, (2) final scripting, (3) production, and (4) post-production and utilization. Project team members discussed are the project leader, instructional designer, academic specialists, researcher, producer, director, utilization specialist, writer, and supporting technical and project staff. The tasks and interactions of the major team members are analyzed in depth, including characteristics, roles, relationships, and new, job-related techniques. Briefly-stated conclusions complete the guide. (LMM)

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The Project Team in Instructional Television

Kenneth G. O'Bryan

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Preface

The Project Team in Instructional Television is a companion book to *Writing for Instructional Television*, both written by Kenneth G. O'Bryan and published by the Corporation for Public Broadcasting.

These books grew from a comprehensive conference on "The Impact of Television on Learning," hosted by CPB in Denver, Colorado, in August 1978. The conference was attended by representatives of education, developmental psychology, sociology, research, behavioral science and educational technology and communications. From this conference, CPB received recommendations for future activities and research on television and learning in three areas: (1) utilization; (2) production of ITV; and (3) general research on children and television.

Following the conference, CPB staff analyzed the recommendations to determine which ones were most appropriate for the Corporation's educational focus. It was determined that handbooks to aid production teams in developing instructional television would be a useful contribution since such books did not currently exist.

The Corporation turned to one of the conference participants to begin this work and, after a preliminary manuscript was developed, reviewers told us that writing for instructional television was important enough to warrant attention in a separate volume. This recommendation resulted in the publication of two books by Dr. O'Bryan.

Mary E. Sceiford
Associate Director for
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Foreword

A leading instructional television (ITV) executive has a sign on his door that reads:

> *We're not in show biz;*
> *We're in the learning biz.*

The sign is an affirmation of ITV's struggle to serve a special audience—learners—through a medium that many audiences and television professionals alike have associated primarily with compelling entertainment.

The sign reminds us of the difficulties ITV pioneers have faced in their efforts to bring the learning biz and the entertainment biz together in new and fruitful ways. From its beginnings in the early postwar years, the evolution of ITV has mirrored the efforts of educators and producers to find a common ground, where the talent and expertise of each could come together in a new form, where content could both captivate and teach.

The purpose of this manual is to map that common ground of personnel roles and relationships essential to ITV production. It defines the makeup of an instructional television project team and the particular and essential roles that educators and television production staff play as the project develops. Importantly, it shows how the "learning biz" and "show biz" elements can meet on common ground to meet common goals.

This manual is designed to serve three principal audiences. First, it addresses those who must understand the personnel and processes of ITV production because they must make policy and financial commitments to its use—the educational "gatekeepers." Although they may not be involved directly in production, gatekeepers affect and are affected by what ITV teams produce; they must integrate ITV programs into the financial and personnel resources of an educational system. For these gatekeepers, this manual analyzes, from the inside out, how educational and production values are melded in an ITV program, how ITV programs are accountable to educational mandates, and how ITV staff and production needs relate to bottom-line costs.

Second, the manual serves students and their teachers in communication faculties. In this book they will find a concise and up-to-date account of how ITV production works. Because the information contained here is based on the practical experience of professionals active in ITV production, it serves to translate theoretical and often necessarily sketchy textbook knowledge into pragmatic, working guidance.

Third, and most important, this manual serves educators and television personnel who come together as members of an ITV project team. For these people, the manual develops an ITV project team model. The model assumes that there is a specialist for every task required by ITV production, and that every task has a particular art, science, or technology associated with it. The manual is organized so that each specialist's role is defined, and so that each specialist's relationships to other team members are articulated throughout the four phases of the production process. Phase one takes the project from conception through the first draft script, phase two covers the period of final scripting, phase three deals with production, and phase four concerns post-production and utilization.

Clearly, instructional and commercial television have evolved in markedly different ways, most especially in the

ways each produces programs. The writer, producer/director, and talent are at the heart of commercial television production. Instructional television, on the other hand, requires critical interaction among specialists for whom there are few counterparts in commercial television. Instructional designers, researchers, consultants, advisory boards, and utilization personnel all may significantly affect a program's eventual design and production. With the writer and producer/director, they form the project team responsible for the development of ITV programs. This manual provides the informational map, the ground rules, and a cooperative management model designed to enable this production team to proceed creatively.

Creativity is never conflict-free. Relationships among high-powered academicians, technicians, and artists are bound to produce disagreements and controversy. That much is natural—and inevitable. Nevertheless, this book assumes that a common goal—a high-quality, instructionally sound program—is both possible and exciting work. It is to this work—the work of bringing television and learning together—that this manual is offered as a framework and a guide.

Introduction

Young people are the ultimate target audience for school-based instructional television. But before ITV can reach and teach them, its programs must be acceptable to those who are professionally responsible for the instruction of the young. Thus the "gatekeepers"—curriculum coordinators, principals, teachers on the local level, or education specialists and curriculum coordinators on the state and regional level—must approve ITV programs before they can reach their intended target audience. Programs must pass through selection criteria before they can reach young people in schools. Rarely is an ITV program or series selected for use by the learners it is designed to teach.

The needs and values of gatekeepers tend to differ markedly from those of the target groups. For example, they look for programs that fit well into the regular curriculum or that have sufficient instructional content to justify the time it takes from the regular curriculum. Essentially educators, gatekeepers are concerned with the whole educational package. For them the perceived quality of nonbroadcast materials associated with a program may be crucial to its acceptance. It is not unusual to find that the quality, even the amount, of print and support material associated with a series is critical to its initial utilization.

Gatekeepers also are sensitive to the degree of teacher participation and interaction that the program requires.

Whenever a program demands too much or too little teacher preparation, follow-up, interaction or interpretation, gatekeepers will tend to reject it.

Pedagogy is primary with gatekeepers; appeal and attraction to the direct audience is secondary. Generally, gatekeepers support the "learning biz" view, but they, too, have to be attracted by the program; hence, ITV is forced into a delicate management of entertainment and instruction.

Students, the direct target group, may be expected to react differently. Accustomed to the pace and high production values of commercial television, the target audience tends to be far more responsive to the visual and dramatic appeal of the production than to the intrinsic value of its instructional content. This is not surprising, in view of audience's tendency toward passive viewing. On the other hand, ITV asks of students a different kind of attentiveness and, most importantly, a different preparation for viewing. Hence, without this preparation, students may respond most readily to its production values, to the show biz elements in ITV, particularly when the pedagogy is complex or difficult.

Thus, the melding of values between gatekeepers and the direct audience is reflected in the composition of most ITV teams. On the one side are the educators, instructors, and content specialists representing learning, and on the other are the writers, producers, and talent representing the show. Left to themselves, each might produce a very different looking program. Integrating and balancing the "learning biz" and show biz elements, however, are the essential tasks of the project team.

The Project Team in Instructional Television

Members of the Project Team

The size and composition of the project team vary with the complexity and cost of the project and the resources of the production agency. The learning-production model described in this manual represents an approach required for a substantial project—such as would be required in creating and producing a series for an average American school system. If sufficiently well funded, such a series would require a full range of consultants and specialists and would represent a major undertaking by a medium-sized production agency such as a state authority for educational television.

The Project Leader

Sometimes known as the executive producer, the project leader is comparable to an executive producer in commercial television, except that in ITV the primary targets are the gatekeepers and the students rather than the general public.

Although the project leader may be drawn from among any of the team specialists, the leader usually is a production-oriented person. Principally a coordinator, the leader schedules, sets policy, budgets, and oversees project management from conception to delivery. In very big agencies the project leader may seek assistance in the routine tasks from a unit manager who serves as staff assistant and detail person.

Agencies with a very strong educational orientation may draw the project leader from the instructional design or the educational director's staff, rather than from the production personnel. Although writers, researchers, or utilization personnel rarely lead projects, if one of these specialists takes on the project leader's role in mid-producton, that role should receive the higher priority.

The project leader may have at least one other specialist task on the team, but the primary tasks are to coordinate activities and decision making, resolve disagreements, and take sequential responsibility through each stage of the project's development. All members of the project team must satisfy the project leader's requirements for adherence to schedule and abide by judgments that define the qualitative standards of the production. Therefore, the project leader should be chosen as much for management ability as for specialist skill.

The Instructional Designer

The influence of the instructional designer on the style, content, and execution of ITV has increased enormously in recent years. Many instructional designers are graduates of degree programs at the master's or doctorate level and are theoretical and practical specialists in instructional design. Although they possess the prestige that advanced degrees can carry in educational agencies, they may sometimes burden productions by designing more content into the format than the programs can carry.

The instructional designer's principal tasks are to develop an overall design for the broadcast and nonbroadcast materials and to create the writer's guidebook. The tasks involve working with the academic specialist to select and determine the educational content of the television programs, designing or supervising the design of content and format of the teacher's guide, and creating the structure and

content of the students' support and practice materials. Determining an instructional style and establishing a theoretical teaching viewpoint also are appropriate tasks. For example, the instructional designer may suggest that the content demands an interactive style, a reality or fantasy-based script, a format reflecting a deductive or an inductive approach, or a program based upon an eclectic instructional system.

The production can reflect the "learning system" of a powerful instructional designer, one to which the television program itself may be either primary, secondary, or supportive in nature. A critical member of an ITV team, the instructional designer must be sensitive to both content and production problems if the series is to be successful.

The Academic Specialist

Almost every project team includes at least one specialist representing the specific content area of the production. Sometimes this specialist combines knowledge of the content with a broader understanding of the target audience. When the specialist is an academic or technical expert of national or international standing, the influence exerted may be substantial.

The role of the academic specialist is at least threefold. First, the academic specialist is a resource person in the educational area central to the project. A knowledgeable, consistent, and interested person can be a prized asset to a project team, providing the advice is restricted to the specialist's area of expertise. Regrettably, some specialists become "instant experts" in ITV production. When this happens, the project leader's diplomacy may well be tested.

Second, as the team's academic security blanket, the specialist provides the expert advice necessary to defend the project's accurate interpretation of instructional content, especially in controversial areas. The specialist's support

for the team's decisions can be particularly important when official or governmental groups may not agree with the levels of instruction or the nature of the subject matter.

Third, the academic specialist serves as an in-house content critic, difficult to satisfy in first script drafts, adamant in demand for accuracy in second drafts, and careful in reading final drafts.

The Researcher

Major ITV productions require several types of research. The *formative* researcher is most likely to appear as a member of the team. Distinct from either the program or evaluative research specialist—although the same person may carry two clipboards—the task of the formative researcher is to test programs on live subjects as stages of the production develop. Sometimes this involves testing treatments, scripts, segments, or pilot projects. At other times, it requires developing profiles of target audiences and gatekeepers.

The formative researcher tends to find more problems than solutions and is often unable to answer apparently straightforward questions without giving at least three possible reasons why a problem occurred. Formative researchers with a close understanding of production realities usually are cautious and tend to suggest possibilities rather than absolutes. Such caution is appropriate, for it is extremely difficult to conduct action research on television segments without incurring some experimental error.

Some project teams may be overwhelmed by researchers' pronouncements and accept changes in approaches and techniques unnecessarily or inadvisably. It is generally wise to ask careful questions about all results that the researcher provides. By the same token, the researcher should answer questions with explanations in plain language.

Evaluative researchers, sometimes called "summative evaluators," may be part of the project team, but properly

they should be independent of it. Their task is to carry out research after the project has gone on the air and to assess the degree to which it has achieved its objectives.

The *program* researcher, especially in smaller agencies, is not always included in the project team. A potentially valuable assistant to the writer or the producer in ensuring content accuracy and in doing the necessary legwork in search of detail and background information, a good program researcher works well with specialists and has a high tolerance for routine digging.

Researchers should not be project leaders. Even among the very experienced, there is a distressing tendency to confirm personal hypotheses, and the credibility of both leadership and research can be impaired if the researcher is not independent.

The Producer

The producer's role in commercial television is a powerful one. Good producers also are strong in ITV, but they lack the aura of omnipotence of their commercial network counterparts. If the producer is also the director, then he or she usually will have a significant impact on the nature of the production, provided the agency is not completely committed to instructional design. The producer's role is often that of project leader and coordinator.

The producer must develop a professional feel for the ultimate style and content of the programs. Often a former director who has moved on from calling-the-shots to general management, the producer usually maintains a close interest in the technical aspects of the production. Thus, sometimes producers will display more sympathy for a director's viewpoint than for that of other team members. Team members should be aware that many ITV producers and directors—characteristically—tend to be more interested in the production's technical quality than in the extent of its

instructional impact. Producers who become project leaders need to guard carefully against this tendency.

The Director

The director executes the actual production, calling all the shots and managing the project from the time it goes to the studio through the final mastering. Effective directors tend to be technically proficient people who work very well with their studio crews—the lighting technicians, switchers, sound persons, floor managers, and camera persons—as well as with the on-camera talent.

It is necessary for directors to understand the overall nature and intent of the project better than any other team member. In addition, a director should have an up-to-the-minute grasp of the latest technological innovations and an understanding of how their judicious use can draw the best out of scripts, talent, and target audiences. Directors may make good project leaders provided that their management responsibility does not interfere with the creative execution of the actual production.

The Utilization Specialist

Accountability has become the watchword of many funding groups and a nightmare for agency managers. In commercial television, the station's marketing staff deals with the accountability problem. While commercial television's rating systems function to measure program "success" and possess an almost absolute effect on decision making, ITV is more complex. Effective use, not numbers, by small but target audiences provides the data that measure ITV success.

For this reason, utilization specialists are being incorporated into project teams at the earliest stages of production design. Their work can have a significant impact on whether or not a program is accepted by the gatekeepers. In certain

circumstances, they can strongly influence the nature of the programs. The trend toward shorter programs, for example, is attributable in no small part to the information brought back from the school systems by utilization specialists. Some also report that teachers want more class time before and after the program during which to exploit openings in the topic area.

Effective use of the utilization specialist—who can describe current feelings and expectations of the gatekeepers through whom the program must pass—can indicate the changing needs of the various target audiences. Furthermore, utilization information drawn from areawide surveys and station advisory groups can affect the ranges of program budgets. Utilization specialists are likely to attain even more significance in the project team as demands for accountability grow.

The Writer

Few good writers are rewarded in instructional television as handsomely as in commercial television. The lack of mass audience for any particular ITV series, combined with low production budgets, tends to turn good and talented writers away from ITV once they gain the skills and reputation that permit entry into commercial television.

Despite their critical importance to a project's success, writers often are low on the project team totem pole. Thus, writing sometimes becomes subservient to the needs of the instructional designer, the content consultant, the formative researcher, and the producer/director. The writer should be a key person on the production project team, from conception of the topic area through final acceptance of the shooting script, and should continue thereafter to be integral to the production until final editing. Responsible for far more than the words of the program, the writer should not be relegated to the status of a second-class team member.

If freelancers, especially those writing from another location, have difficulty maintaining close contact with the project throughout its tenure, the appointment of a head or coordinating writer for series production can ensure continuity and communication among supporting writers as needed.

Supporting Technical and Other Project Staff

The members of the project team are supported by technical staff, either from their respective departments or freelance. For example, the researcher usually will have in-house or freelance assistants carry out the necessary testing and assist with data analysis. Writers may be freelance or on staff and sometimes will have access to program researchers who will supply background data for dramatic and content accuracy. The producer and the director will always be supported by technical personnel who form the studio and editing crews for the project.

Members of production crews, rarely included as full members of the project team, are represented by the producer or the director. The production crew includes camera crews, sound and lighting technicians, switchers, floor managers, talent directors, production assistants, set designers, and make-up specialists. In addition, film and tape editors, laboratory people, and numerous others work during the production or postproduction phases of a project. Although the roles of these technical specialists will not be examined directly here, their techniques in ITV will be included insofar as they augment the roles and relationships of key team members.

Summary

The project team is a composite of professionals from two main sources. On the one hand, the educational (instructional) group includes the instructional designer, the academic specialists, and the utilization people. On the other

hand, the production (media) group consists of the writer, the director, the program researcher and the studio team. The formative researcher stands outside both groups.

In certain respects, a project team reflects the overall structure of the parent production agency in that its members belong to the key divisions in an ITV agency and tend to report to "directors of education" or "directors of production." The researchers are usually independent, and operate under their own head of research. This model is charted in Figure 1 on page 10 and illustrates how a typical project team may be linked to agency divisions. There are, of course, many different models. In some, the writers report to the director of education, variously known as the vice president for instructional design. In others, utilization may be independent of either instructional design or production.

Regardless of the model used, the educational/instructional personnel and technical production personnel usually come to the project from separate management divisions or even from separate institutions. Figures 1 and 2 are models on which this manual's exposition is based—however diverse and varied is its manifestation in actual practice.

Figure 1. Potential Impact of Agency Staff on ITV Project Team

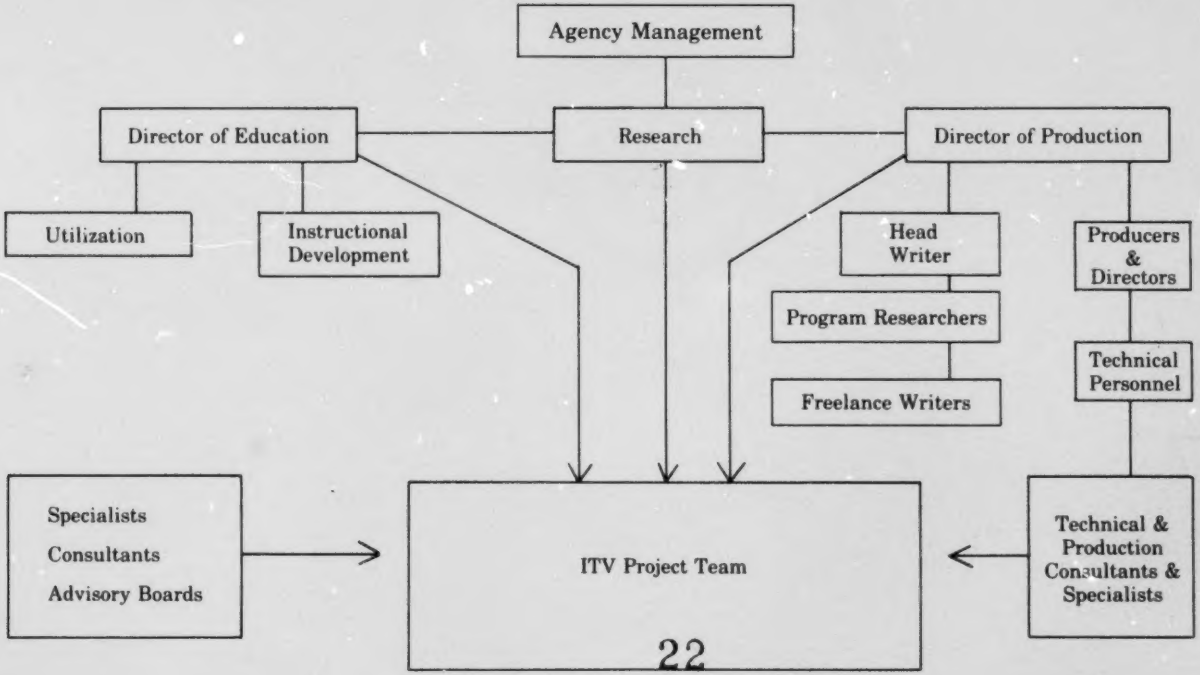
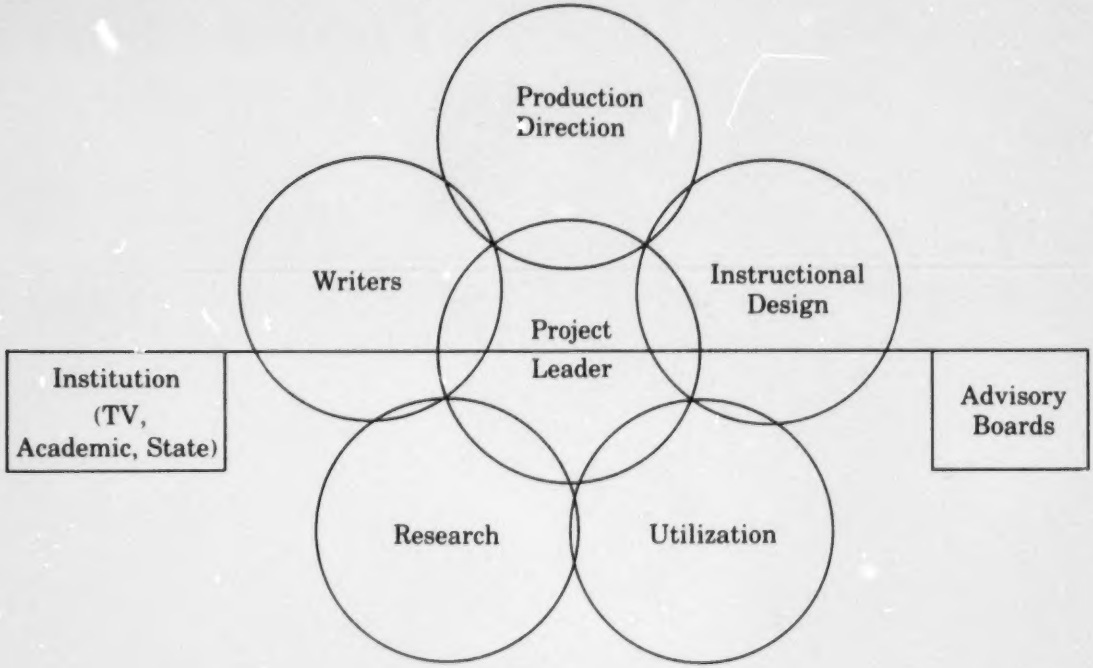


Figure 2. The ITV Project Team



Tasks and Interactions of Major Team Members

Whereas early instructional television programs featured a lesson presentation by a master teacher (the so-called "talking head"), contemporary ITV ideally requires complex coordination of many skilled specialists. In reality, balanced and integrated use of all team members is a challenge to project management. On occasion, one or two specialists may dominate the team. At other times, an inadequate use of the theoretical and practical knowledge possessed by the team members results in an imbalance between the creative talents of the production people and the instructional methodology of the educators. Such an imbalance may be caused by inadequate understanding of the nature and purpose of individual tasks and of the ways the training and expertise on the team can benefit the project.

How can each of these roles be structured effectively? What guidelines can ensure effective use of each specialty area? To answer these questions, a wide range of production agencies were contacted, and an extensive review of ITV-related literature was performed to assemble information for the following analyses and descriptions.

The data revealed highly consistent attitudes concerning the appropriate composition of production teams, but much less certainty concerning the levels of responsibility for each member. In addition, the literature was quite sparse in either research or in conceptual papers delineating the tasks

of the ITV project team. The field is rich, however, in examples from the practical world of production. Thus, descriptions and analyses offered in this manual are interpretations of pragmatic experience of such production agencies as the Mississippi Authority for Educational Television, Ontario Educational Communications Authority, Kentucky Educational Television, Children's Television Workshop, and other organizations including the Agency for Instructional Television, the Eastern Educational Network and the Southern Educational Communications Association. In addition, a number of specialists from these and other agencies discussed their perceptions of their roles in project teams.

The following sections deal with each of the major members of the production team. After describing the tasks for which each member is responsible, the characteristics of the position are outlined. Because ITV is a team effort, the roles and relationships with other team members are then discussed. Finally, innovative techniques associated with each team member place the responsibilities and potential of that team member's role in a larger perspective.

The Project Leader

The key task of the project leader is to coordinate the activities of the team. When projects become unbalanced or fail in the preproduction stage, the problems usually can be traced to a disorganized or inadequate leader. Similarly, when the project appears to have been well developed up to the production phase but fails due to the lack of a good integration between audience-holding characteristics and instructional validity, the project leader is probably culpable.

Clearly, project leading is a difficult and sensitive task requiring tact, a sympathetic understanding of all the project's special tasks and an ability to make decisions, even when they do not seem to reflect team concerns. Experience has shown that decision making based upon consensus has

not notably improved television production. A project with planning and structure executed by committee in the absence of firm leadership may be very difficult to complete successfully.

Although ITV production agencies' interpretations of the project leader's basic characteristics and duties differ, the following compilation reflects the common wisdom of many successful agencies.

Characteristics. Most importantly, the project leader must possess a broad understanding of the special needs of ITV production. The project leader should be able to interpret every specialist's role and be familiar with the roles and responsibilities of all team members, but may not necessarily be a specialist in any one aspect of the project. In short, the leader must know enough of each area to avoid being dominated or intimidated by any single interest.

Since a project leader will interact with all management levels, leadership credibility is particularly crucial in dealing with academic specialists and advisory board members, many of whom may be well-known experts in their fields.

Leadership credibility bolsters tact and diplomacy necessary to settle disputes between members of the project team.

Television production is often characterized by individuals whose passion in arguing their own positions may exceed their ability to see the validity of another conflicting view. Project leaders sometimes must handle a number of temperamental people who are equally important to the success of the project.

Successful project leaders tend to be good organizers who do not have a vested interest in any single aspect of the project. Management-oriented rather than artistic or creative persons, they often are excellent listeners. They are skilled in making each team member feel that his or her contribution is recognized and important. They avoid

confrontation whenever possible, but never permit an ego-satisfying compromise to weaken the project.

In many agencies, the leader also administers the budgets and the housekeeping aspects of the project. Because few things are more disruptive to production than clumsy detail administration, it is essential that the project leader be a good administrator. In the bigger agencies, or in the case of major production series, however, the project leader usually has an assistant, a unit manager, who looks after the administrative details of the project.

Roles. The project leader has an important role to play in bringing together the various elements of the team. Although comparable to the executive producer in commercial television, the special nature of ITV production places more demands on this role.

The ITV project leader must achieve a match between instructional and production values. The relationship between instructional content and the attention-holding characteristics is a delicate one, requiring careful fine tuning. The project leader is its catalyst; the match rarely occurs spontaneously. Experienced project leaders and other specialists suggest several ways the match may be made, some apparently contradictory. Certain leaders prefer a large-scale, management approach, while others prefer to concentrate on small-group interactions, using the full-team meeting primarily to coordinate them. Most leaders agree, however, that formal, full meetings and small-group special interest discussions need to be integrated, as the process below illustrates.

- Regular, written updates of all phases of the project's development with the activities of each specialist and the relationship of each to the overall project should be provided by team members. The danger inherent in the report-oriented method is the creation of a paper bureaucracy that concentrates on trivial development. Used judiciously, the

reports can form a useful record of the project's progress while informing all members of the team of necessary interactions to be taken.

- Informal supplementary meetings should be held with closely connected specialists, such as the writer and the instructional designer, the writer and the director, and the researcher and the director.

The use of supplementary, informal meetings helps diminish the dominance of one or two very vocal or powerful members in formal project team meetings. Shyness is a surprisingly prevalent characteristic of many artistic and creative people, and this trait may prevent their full participation in production. Getting together for coffee can open up topics that are too sensitive or controversial for clear-sighted discussion in more formal settings. The process also affords opportunity for noncritical "bull sessions" on project ideas or problems. Many project leaders agree that creativity rarely can be formalized and that the best and most original problem solving characteristically takes place in free-wheeling, on-and-off-topic discussions.

There are dangers in the unofficial meeting technique, however, as insecure project team members can read unintended implications into one-on-one and one-on-two coffee klatches. The project leader may counteract such potential apprehension by announcing the intention at formal team meetings to hold the subsequent, informal discussions and by doing so as soon as possible thereafter. When all members of the team become involved in such small-group meetings, the process is less likely to create "in" and "out" groups. Discussions of the personalities, working characteristics, or shortcomings of people connected with the project should be avoided in the informal meetings. Although it is impossible in the real world to keep all discussions entirely professional and off the topic of personalities, team morale requires that the project leader avoid creating or joining cliques.

The project leader should rely more on regularly scheduled small-group discussions than on full-team meetings. Instructional and production teams necessarily follow separate developmental paths, but they should come together to coordinate their activities. Furthermore, *ad hoc* action groups can solve tactical or administrative problems. As each problem is solved, or as each stage of the project is completed, the group can disband in favor of the next appropriate working group. For example, the first group might include the writer and the instructional designer and perhaps the consultant. The second group could consist of the writer, consultant, and producer/director. Another would bring the program researcher, writer, and instructional designer together, and a fourth might have designer, producer, and writer as the production team. The project leader remains an *ex officio* member of each subgroup to determine when full project team meetings are necessary. Under this approach, the project leader integrates all essential activities. Generally, researchers and utilization specialists function as consultants to the groups and retain a high degree of independence.

Whatever combinations of these approaches are used, the project leader's principal role remains to coordinate and integrate the various specialties in order to bring about a good mix in instructional and production values.

Relationships. The hub of the project team, the project leader is connected to and operates through the specialties of all members. The intensity and direction of their relationships typically change as the project develops, concentrating first on the instructional designers, consultants and writers, and later on production and utilization personnel.

It would be incorrect to assume, however, that all the relationships of the project leader with the team are sequential. The team should be complete from the beginning, and almost all of its members should be present throughout the development and execution of the series. It is reasonable to

assume that some will be more in evidence through the earlier stages, and less so as the project continues. For example, formative researchers tend to be present throughout the project, while instructional designers are very important in the beginning stages but less so when a program goes into studio production. A comparable time and action plan could be spelled out for the writers, except they should never be allowed to leave the team until the final editing is completed.

Professionals asked to express views for use in this manual generally agreed that the relationships established in the team should be tailored to the appropriate developmental stages of the project. They also were close to agreement on what the project leader needed to know and expect from each of the specialists throughout the project. Supplementing the author's own experience, these views form the basis for the project leader's activity and relationships through each of the major stages of production.

Planning and production for ITV fall easily into four functional stages. Stage 1 carries the project from its initial conception through creation of a draft script. Stage 2 is final script development. During stage 3 the final script is realized in production. Stage 4 is postproduction and utilization.

In Stage 1 of project development, the leader works primarily through the writer and the instructional designer, supplemented with content and theoretical assistance from the academic specialist and advice on the specifics of production technology from the director. Researchers supply information for the instructional designer and the writer. They can prepare state-of-the-art papers on learning theory and instructional content, as well as on the nature of the target audiences. At this point, the utilization specialist also can serve as a resource, assessing likely gatekeeper needs and reactions.

At the end of Stage 1, the project leader should expect the specialists on the team to have completed the following basic activities:

• The instructional designer will have provided the matrix of content intended to be covered in the series. Developed on the basis of series goals, the plan should be quite specific in detailing the purpose and amount of instruction to be carried by each program. It also should indicate such factors as whether particular programs can be viewed independently, whether they require viewing preceding programs, and whether review programs are to be included in the series. The plan should suggest how the programs are to be used in conjunction with nonbroadcast materials and teacher's guides. Finally, the instructional designer's vision of the expected match between the educational technology and the learning styles of the target audience should be presented.

• The academic specialist can be more valuable to the project leader at this stage of development than at any other. Working closely with the instructional designer to create the series matrix, the consultant should be encouraged to offer suggestions for content and for the theoretical justifications of the instructional design. The specialist, expected to know the program curriculum, can be asked to outline major curriculum theories, advise on the practical application of these theories, and anticipate possible difficulties in content or utilization. The specialist should summarize all suggestions in writing as a record of processes and decisions.

Some academic specialists are particularly effective contributors to "bull sessions" in the project's early stages. Formal meetings, by contrast, can sometimes inhibit the kind of creative or speculative views that transform dry pedagogy into lively and effective ITV.

• The writer usually presents a special challenge for the project leader. Some ITV writers are former teachers, who are skillful prose writers, but who may lack the visual imagination, technical knowledge, or experience necessary for effective scriptwriting. Other ITV writers may be on staff,

already familiar with requirements of instructional scripting. Difficulties may occur, however, when commercial television writers attempt ITV scripts. Such writers are rarely comfortable working under the constraints that they believe instructional designers, academic specialists, and researchers impose, and they tend to get discouraged.

Since the leader's challenge is to help match team members' talents or expertise to the project needs, the project leader must quickly discover the writer's educational background and television experience. Through one-on-one discussions to explain the purpose of the series to the writer, the leader also can become more familiar with the writer's strengths.

In working with the writer, the project leader may have to become a careful organizer and adept exploiter of personal dynamics. Writers with plenty of television experience but with little feel for instructional content should be treated differently from their counterparts in education. The former will find considerable contact with the instructional designer and the academic specialist useful. The latter should take opportunities to explore the visual potentials of television scripting through encounters with production people and by reviewing shooting scripts from similar or related projects.

At the same time, it is essential that the project leader protect the integrity of the writer's script. It is easy for academic specialists or instructional designers to take over a script and replace the writer's concepts with their own ideas. When this happens, fragmentation and imbalance may cause the project to flounder. When a project leader feels that a script needs changes beyond the writer's capability, it may be necessary to call on another writer for rewriting or cosmetic work. While other team members may have useful scripting suggestions, part-time tinkering without the responsibility of actual authorship can be devastating to the morale of the team and the quality of the production.

When a project fails to go well, the writer usually is the first person changed. Sometimes the writer may request this, but more often a frustrated project leader changes writers when the necessary mix of media and message is not occurring. The project leader's failure to match the theory and expertise of the instructional designer, researchers, and specialists with the creativity and artistry of the writer may cause this problem. There are no easy answers, but experienced people who have worked on many project teams suggest the following:

- Examine the information the instructional designer is supplying to the writer. It may be overwhelmingly detailed, since by training and experience instructional designers are print writers. Their prescriptions for instructional content and the conceptual hedges they build around the presentation are sometimes so elaborate that the number of pages in the design far exceeds those in the final shooting script. The instructional designer should be asked to select no more than four different concepts essential to the design and to write a brief (about 50 words) elaboration of each. Then, if the writer cannot provide a satisfactory treatment, it is time to consider a replacement.

- Ask the director to review the writer's treatment or draft script for visual content. If the writer is unable to use the power of the visual medium to convey ideas, his or her talent may be better suited to print or radio scripting. On the other hand, the director's fresh insights may help bring the script to life.

- Get an independent assessment of the script. If the personality and talent mix seems appropriate, but if it is not resulting in a workable treatment or draft script, it may be useful to request the formative researcher to test it with target audiences and gatekeepers. Sometimes a script that appears "off" to the production team and senior management

is right for the intended viewers. Equally often, the reverse is true: Scripts that look great on paper and are enthusiastically accepted by the team may fail in practice.

The leader's task is more complicated still in major series with several scriptwriters working under the leadership of the head writer—a working relationship considered in greater detail later in this chapter. The project leader may have to work with the head writer as well as with a team of scriptwriters.

The project leader who successfully integrates the work of the academic specialist, the instructional designer and the writer(s) to create a producible script is well on the way to a successful series.

Almost everyone on the team is heavily involved in Stage 2, the critical phase between drafting the script and final shooting. Subtle changes in relationships, however, are likely to occur. The producer/director will assume an increasingly larger role. Gradually the project leader relies less on the instructional designer and the academic specialist and more on the production people, especially those concerned with organizing the shooting schedules and coordinating studio and crews. The producer or the director will have taken care of most of the management of the production crew, including cast directors, set designers and talent directors.[1] Nevertheless, the project leader needs to be informed of all aspects of the project and should have an established reporting system to maintain information flow.

Creating a good working relationship between the writer and the producer/director is essential at this stage, since the writer must ensure that the production team clearly understands the basic intentions as well as the

[1]The roles of producer and director will be combined hereafter as producer/director, since this seems to be a growing trend in many agencies and is typical on project teams.

subtleties of the script. In addition, the instructional designer must be informed of any script changes to accommodate production needs. As a matter of policy, any such changes should be cleared through the instructional designer before final adoption.

The formative researcher has an expanded role in Stage 2. He or she should have begun to test script segments or experimental productions on target audiences and may have some hand in researching the effectiveness of talent, sets, and presentation techniques. The project leader generally should review research reports before discussing them with the project team. Since such reports sometimes are negative in tone, it is most important that the project leader handle with tact the wounded feelings that may result from the researcher's interpretations of the data.

If time permits, it is useful to try out the script on advisory boards or other academic specialists before production. This can be a delicate process, and the project leader needs to present the script carefully. Even well-selected advisors can react vigorously, unjustly tearing a script apart. On the other hand, when all project team members attend advisory board meetings, their presence may inhibit honest reactions. Thus the project leader must weigh advisory board opinion against the opinions of other specialists and filter the valuable suggestions from the less thoughtful, superficial ones.

In Stage 3, production, the project leader will be involved in integrating the work of the researcher and the production team. At this point, almost all the expected outcomes of the program have been set. The instructional design will have been completed, and the writer normally will be on hand to do rewrites, if necessary, or to work with the talent director. This should not suggest to the project leader that most of the work has been completed. On the contrary, this critical production phase requires much of the project leader's diplomacy and tact.

The key personnel in Stage 3 are the producer/director and the production crew. As a general rule, the organization, direction and activities of the production crew should be left to the producer/director. Involvement in the production activity by any other members at this stage should be carefully controlled. Unwarranted or uninvited involvement can damage morale and will almost certainly be counterproductive.

The project leader must try to facilitate the producer/director's work by filtering advice and by providing suggestions. A prime task is to prevent any overenthusiastic team members from unofficially directing the production. Many good ideas, however, do originate from instructional designers and researchers. Furthermore, the utilization specialist often is better aware of the marketplace reactions than anyone else on the team. Consequently, the project leader should listen to ideas from the team and keep the producer/director informed.

The formative researcher also is involved in Stage 3 to facilitate incorporating experimental segments from test results. Working with the producer/director, the researcher also should be able to bring his or her expertise to bear on any problems that may arise during the taping of the show. Questions concerning the content, timing and placement of graphics, or the potential audience-holding appeal of a song or dramatic skit can be examined relatively easily. Sometimes tests can be arranged with the target audience; at other times the researcher may advise on the basis of experience.

The instructional designer should be given a continuing "watching brief." Strange things can happen to the content and teaching style of a program when it goes into production. More than one instructional designer has been unhappily surprised by the final edited version of a show whose script seemed to be more in line with the educational objectives than was the ultimate production.

During this third phase, the instructional designer, the writer, the researcher, and the utilization specialist should work on the nonbroadcast materials: teacher's guides, student's workbooks, and whatever back-up information, promotional materials, and print materials are required for the production. Print production requires coordinating the work of in-house or freelance artists and graphic designers, photographers, printers, and other support services. Although coordinating team members' work with the necessary technical and creative services and suppliers may be delegated to the appropriate specialists, as the chief project administrator, the leader must ensure that all the activities are effectively coordinated.

In Stage 4, postproduction and utilization, the final edited version of a program is complete, and the relationships of the various team specialists shift substantially. The center of action moves from the production crew to the instructional designer and the utilization specialist. The former ensures the integrity of the program's instructional design as well as of its nonbroadcast materials. The utilization specialist's role becomes crucial: Errors in scheduling, promotion, or program presentation can easily decrease the success of the project.

If the finished program is to be evaluated, an independent researcher works with the instructional designer and the utilization specialist to design the summative evaluation, which determines whether the program (or series) has achieved its educational objectives.

The project leader continues to manage these interactions and to complete any remaining postproduction administration.

New Techniques in Project Leadership. A wide range of theoretical and practical personnel management approaches are available to project leaders, but there is little information specific to ITV project leadership. Most leaders whose experi-

ence guided this manual indicated that while they had had little specific training in project leadership, they honed their expertise on the job. Thus, it is difficult to suggest new techniques beyond those noted above.

The Instructional Designer

The critical differences between general and instructional television are personified by the instructional designer. If the scripts are to be successful and if the programs are to attain their educational potential, the interaction between the instructional designer and the rest of the team must work. In some agencies the interaction is smooth and productive; in others it has nearly led to disaster. Although there is almost always some conflict, it can be constructive if the instructional designer and the other team members are professionals equally committed to their tasks.

Most conflicts arise from the problems of adapting a high-impact medium, devoted primarily to entertainment, to instruction in a setting often antithetical to entertainment—the classroom. Although instructional television has many settings other than the classroom, its target audiences usually are familiar with television as entertainment.

Most television writers and many ITV directors support the target audience's view of television. They believe that a good program is a producer's creation and that if it is to be successful, content must be secondary to appeal. Most instructional designers, on the other hand, are committed to their instructional models. Hence, conflict is natural, probably inevitable, and almost certain to be both helpful and counterproductive.

Characteristics. The instructional designer is concerned with the content and style of the program insofar as they convey the necessary educational messages. This concern must be taken into account, because unless the instructional

component works, the program fails and an agency's investment is wasted, no matter how well the target audience enjoyed the production.

Most instructional designers are neither producers nor scriptwriters, but some would like to be. They must not be permitted to write treatments of scripts, call shots or point cameras. Should they become scriptwriters, producers or camera operators themselves, they must then accept the directions of other instructional designers.

Some instructional designers have an ambitious notion of the amount of educational content that a program can carry or that the writer can create as a shooting script. Such designers develop writer's guidebooks that are massively documented, often, unfortunately, with theoretical jargon. Their instructional development packages are more extensive than any teacher is likely to use, and they have a distressing tendency to second-guess everyone else on the team. Effective instructional designers, by contrast, carefully tailor the program's educational demands to the capacities of the target audiences. They are sensitive to the needs of the writer and the production team, and they are aware that television, unlike print, is a dynamic medium that most effectively presents a few clear-cut ideas in any given sequence.

Experienced instructional designers who suggested ideas for this manual generally agreed that a few key concepts, perhaps only three to four, can be handled by a normal target audience within a 15-minute program. Even 30-minute programs cannot afford to overload the medium—or the learners—with information, especially when the target audience is in the elementary grades or when the content is complex or new.

This view of the limited number of concepts appropriate to ITV programs is supported by the practical experience of production and utilization personnel, as well as by the results of summative research conducted on successful and

unsuccessful programs. Most research data indicate that the clear presentation of a few essential ideas, backed by substantial repetition and review, makes a more effective instructional television than does the attempt to develop a sequence of new concepts without review. Presenting concepts effectively requires, above all, that the instructional designer understand both the principles of learning and the characteristics of the target audience. The essential task becomes one of matching the conceptual message of the program with the capacities, experience, and interests of the viewers.

Roles. In larger state agencies and in some major production houses, a Department of Instructional Design is managed by a director or head. Serving as the instructional designer on the project team, the director's role is to interpret project design requirements for staff members responsible for carrying them out. These include creating the instructional content for the television series, preparing the writer's guide, developing the nonbroadcast materials, and advising on promotion and teacher education materials for use by utilization specialists.

When the director of instructional design is a member of the project team, the role is primarily managerial—to create an overall plan for the rest of the instructional design staff to execute. Usually developed in cooperation with other members of the project team, the plan forms the master guide for the series. (This manual assumes, however, that the instructional designer's role is filled by one person.) Collaborating with academic specialists, the designer is to build an instructional framework that can satisfy the educational goal of the production.

Three central tasks emerge: coordinating the work of the academic specialists, building the instructional framework on which program learning is based, and developing the

document critical to translating content into actual programs—the writer's guide.

Working with the academic specialist, the instructional designer is a facilitator and a filter. First, the designer must draw out the essential conceptual and content material in the academic specialist's area of expertise, enabling the specialist to present it in useful form to other team members. Second, the designer must work with the specialist to filter from all ideas and content possibilities those that are essential to program objectives and audiences.

Building an instructional framework requires that the instructional designer blend the *what* and the *how* of the programs. The *what* aspect of this task requires identifying the educational concepts and content deemed appropriate to the program. The *how* requires fusing the content to an internally consistent instructional style, informed by appropriate learning theory and audience needs.

The product of these efforts is the writer's guide, commonly a loose-leaf notebook, which contains enough information about content, objectives, and, importantly, the audiences, to enable the writer to use the television medium as an effective teaching tool.

Thus, assessing audience needs is a central task of the instructional designer. Unless the writer knows the target audience and is able to write for it, the teaching focus can easily be blurred. While it is usually not possible to be completely specific regarding the age groups or grade levels of the target audience, the instructional designer who is able to identify both the predictable and quirky characteristics of this group becomes particularly valuable to the project team. Effective instructional design, sensitive to target audience characteristics, helps match program objectives and content to audience needs, abilities, and interests.

In part, this task requires identifying the learning styles of the target audience. Recent research suggests, however, that every audience contains individuals who vary sub-

stantially in the ways they receive and process information from media. Programs appropriate for one person's cognitive style may be unsuitable for another's.

When programs cannot transcend a narrow spectrum of audience interest, their per capita cost increases dramatically. On the other hand, programs produced with the widest practical target audience in mind expand their reach considerably, and their unit cost becomes relatively modest. The difficulty implicit in designing programs for wide audiences is the loss of specificity, which dilutes program content.

Matching the size and nature of the target audience with the instructional content becomes a critical task of the instructional designer. Carl[2] observes that much ITV intended for in-school use fails, not because objectives are not explicit, but because they are not linked to the characteristics of the target audience.

One solution is to set behavioral objectives, a valuable practice when such objectives enable the program to attain intended goals. Behavioral objectives are only part of the objectives issue, however, which is tied to understanding the target audience. The competent instructional designer recognizes that no target audience is wholly knowable. Ability levels and backgrounds that viewers—even within a reasonably specific age span—bring to an ITV series can vary enormously. Thus the teaching-learning task is more complex than the stating of behavioral objectives usually suggests.

Some instructional designers attempt to identify target audiences through audience analysis. The designer, however, must understand the difference between audience analysis as used in commercial television and the learner analysis as used in instructional television. The first asks what a particular group of viewers might find appealing; the

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[2]D. R. Carl, "Instructional Development in Instructional Television," *Instructional Television: Status and Directions*, J. Ackerman and L. Lipsitz, eds. (New Jersey: Educational Technology Productions, 1977).

second asks what they are potentially capable of learning through television. To blur this distinction can result in producing ITV programs in which instructional effectiveness is sacrificed to audience appeal. In short, a highly appealing, broadly based program that lacks appropriate instructional content fails its essential purpose. Here again, the instructional designer is challenged to define a target audience with the broadest practical base without either exceeding the capacity of the instructional design or forcing the program format away from ITV.

In tune with both audience and learner analysis of the target audience, the instructional designer's mandate is to analyze the content—the subject matter—of the program. Although the designer relies on the expertise of the academic specialist, it is only by collaborating with them, by drawing out their wisdom and then by filtering it through the designer's understanding of all aspects of the audience that the critical mix between content and format can be achieved. This is the mix through which the educational objectives of the program are accomplished.

The instructional designer's problems are compounded by the fact that content analysis, at present, is a less sophisticated part of the design and development of much ITV. The urge to appeal to target audiences, as opposed to instructing them, is a weakness to which programs with inadequately analyzed content segments are most susceptible. When the instructional content has not been broken down systematically, each part cannot be identified with a particular program segment.

A major problem faced by instructional designers is the tendency of writers and producer/directors to select formats and media techniques before the goals and objectives of the program are conceived. Lack of facilities, shortage of funds, absence of experienced personnel, and track-record biases may all conspire to force particular formats prematurely upon the project. Any of these constraints can pressure

the designer to fit educational objectives into what *can be* done, rather than what *should be* specifically created. A fair match can be made when priorities are acknowledged, and when objectives lead and format follows.

The instructional designer's responsibility is to specify the content levels and critical objectives of the series before selecting the format. As a result, formats and media technologies can effectively transmit the instructional component to the target audience.

In sum, the designer must integrate the content with the objectives, placing them within an internally consistent framework and learning style that are sensitive to the audience without pandering to it. The "intellectual rigor" of the programs is the instructional designer's responsibility.

The instructional designer must not operate in isolation. Close working relationships with researchers, the writer, the producer/director, utilization specialists, and academic specialists are essential. Guided by the particular expertise of these team members, while successfully drawing it out, the designer can help create a program format capable of melding television technology with a program content to accommodate different learning styles. The instructional designer is the hub around which the ITV project team turns.

Relationships. The instructional designer is second only to the project leader in regular contact with writers, producers, researchers, and utilization people; all other team members interact with the designer.

Chief among the designer's contacts in Stage 1 (the conception and first script stage) of project development are the writer, the researchers, and the academic specialist. The principal concern in Stage 1 is to ensure that the writer clearly understands the content requirements and that the academic specialist has full input into their development.

During Stage 1, the instructional designer and the formative researcher are likely to come together to test ideas or to

research the background data on relevant audience characteristics and media technologies. The designer should also fully use the program researcher to provide background information on the possible formats or instructional materials under the writer's and the designer's consideration.

Consultants should be drawn in to react to content suggestions and to answer curriculum questions. Their expertise can prove useful in assessing learning styles or in describing target audience environments.

During Stage 2 (final scripting), the producer/director replaces the consultant. In this stage key interactions between the designer, writer and producer/director become most significant. During this stage the designer must ensure that the content is not weakened by the natural desire of the writer and the producer/director to create an entertaining and appealing show. At the same time, the designer should be wary of overloading the program with so much instruction that it becomes impossible to produce anything but a slide/sound show or a "talking head." When the balance between entertainment and production values is questionable, the designer should call upon the formative researcher to test ideas and to try out draft scripts on target audiences.

In preparing for the third stage, the designer must become familiar with the capabilities of the studio and its personnel—how to stretch them to their limits to get the content across effectively.

During Stage 3 (production), the instructional designer should assist the utilization specialists in designing and creating promotional and utilization materials. Keeping abreast of program development at this stage—and this includes monitoring the taping and editing in production—ensures that instruction is not buried in beautiful and exciting, but irrelevant, instructional television.

In Stage 4 (postproduction and utilization), the designer's responsibilities for single-program production decrease, but continue at a high level in series production. It is

customary at this stage for the designer and formative researcher to test programs and materials on target audiences. Data gathered in the research very likely will influence changes in program goals and objectives and in subsequent series, as well as in specific content.

Utilization specialists also will work closely with designers in Stage 4 as they begin to use the materials in schools or with target groups. In series production, they will probably join in testing early programs and nonbroadcast materials. For single-program productions, they may ask the designer to reorganize the print materials and to participate in the promotional activities.

Throughout all stages of project development, the designer should maintain close working relations with the project leader, who should be kept informed of all changes intended or made. Since excessive conflict can be dysfunctional, any major disagreements with writers or producer/directors must be quickly discussed and resolved with the project leader.

New Techniques in Instructional Design. Since the development of *Sesame Street* by the Children's Televison Workshop (CTW) and the *ThinkAbout* series by the Agency for Instructional Television (AIT), some interesting new techniques in instructional design have occurred. As a result of a high profile for instructional design at AIT and elaborate working relationships inside and beyond the consortium, techniques such as the following have developed:

- Holding high-powered meetings with specialists in areas of advanced research in television technology, human learning, instructional design, and curriculum. Consultants whose views will weigh heavily in eventual decision making are put to work on special problems in program design, scripting, or production. Individually or in groups, the consultants complete checklists or respond to open-ended ques-

tions on key problems or issues in the scenes. The instructional design group then integrates the answers as general and specific responses to the issues.

- Establishing "cluster buster" teams whose task is to break through the masses of possible content in a given area and reduce it to manageable proportions for the writer's guide.

- Creating a number of test programs reflecting different approaches to target audience characteristics and different production techniques. The close working relationship between the research and design teams has enlarged the data base on audience and format characteristics, content analysis, and targeting requirements.

- Integrating instructional design with formative research in large-scale testing of pilot programs on target audiences. This has resulted in opportunities to redesign programs for the body of the series.

- Developing a "buddy system" involving the instructional designer, the producer, and the writer. This has created a design team in which the writer and the producer are said to be somewhat less than equal to the instructional designer. Because the designer retains primary responsibility for the intellectual rigor of the program, the writer's prime responsibility is to meet the instructional designer's requirements for the production and content. The producer's function in this effort is to coordinate all aspects of the production.

Whether making the designer the "primary buddy" is the most appropriate way to ensure a good balance between content and production remains to be seen. Nevertheless, it indicates how AIT has made instructional design the critical element in ITV production.

The AIT approach represents a growing awareness of the importance of instructional design, an importance shared by other agencies and universities increasingly involved in creative design programs. This developing science will continue to play an important role in creating new techniques for ITV.

The Formative Researcher

Conducting formative research is integral to the work of major ITV production agencies. Specialized researchers are now regular members of many project teams. Smaller agencies, however, may borrow part-time researchers from local colleges and universities.

In either case, when the interaction between the team and the researcher works well, the project is markedly improved. On the other hand, if artists and scientists view each other with a certain hostility, vigorous (and often productive) disagreements must not become disruptive, counterproductive arguments.

Characteristics. The formative researcher is a specialist who designs and tests various aspects of the project on the target audience and the gatekeepers.

Some researchers base recommendations solely on their research, ignoring contextual arguments founded on principles of creativity. This type of researcher, often supported by a staff of academically well-qualified data gatherers, is often adamant about results and the changes they dictate, even while recognizing that research data reflect only the probabilities—never the certainties—of the success or failure of a given treatment.

To be effective, formative researchers need a good grasp of basic television production. The ability to conduct investigations quickly and to report relevant results increases their effectiveness.

Action-oriented research can help the team decide appropriate formats and settle content questions. Action-oriented research—so-called because its laboratory is the real-world classroom or learning environment—tends to have a direct impact on the production. Nevertheless, as a reporter, the researcher's role is to offer alternatives and then to advise on approaches to take rather than to deal in absolutes. Because the researcher must be assumed to be as susceptible to error as anyone else, the data, as with any other source of information, must be viewed with care and skepticism.

Roles. An effective formative researcher can test, at relatively low cost, almost any aspect of preproduction. For example, the researcher can test treatment ideas on target audiences or gatekeepers, report levels of interest and appeal, and suggest avenues of development and change. First-draft scripts can be storyboarded and tested with a voice-over to carry the story line, or actual cast members can read their parts in a prerecorded, experimental dialogue. Almost all aspects of the set design, language level, developmental accuracy, educational acceptability, or appropriateness of instructional design can be examined, and the reactions of key respondents reported.

Given sufficient time, the researcher can compare the effectiveness of trial segments by using different formats. In series production, the formative researcher should be able to test and suggest changes for one or more of the pilot programs as the project develops.

Preparing background papers for writers and instructional designers that relate the characteristics (educational, environmental, psychological, and developmental) of the target audience to the current project can be a particularly valuable aspect of formative research, especially when undertaken in collaboration with instructional designers and academic specialists.

If the project has more than one purpose, the researcher may continue to collaborate with utilization specialists and instructional designers to provide background data on the characteristics of secondary audiences. While some agencies prefer to leave this work to the instructional designer or to outside consultants, the formative researcher usually is competent to assist and, in some cases, to lead such activities. Clearly assigned roles and open communication engender respect for the responsibilities of other team members and minimize "turf" problems.

Another important task is to develop research questions concerning the main program concepts, content, and learning objectives. These can have an impact on early decisions about a program's format and content, since the first scripting affects much of the subsequent project quality. These questions can serve later as a basis for summative evaluation.

As the project progresses, the researcher will begin testing storyboards for content, theme, characterization, and acceptability to gatekeepers and target groups. Many errors in content design and production styles can be found in the early stages, and costly reshoots may be avoided.

Regrettably, a danger in formative research is to produce findings highly supportive of previously expressed opinions. Although this is never done deliberately, in research the "experimenter effect" is a real problem, especially in action research where variables are less easily controlled. Project team members and the formative researcher should remember that substantially less than one-third of all research in the behavioral sciences replicates when conducted by other scientists under similar conditions. The warning is for healthy, objective caution, not rampant skepticism of all formative research data.

Enhanced by humility and objectivity, the researcher's role remains a crucial one—particularly if, as a result of a good working relationship with the instructional designer,

the researcher can help to determine the acceptability of instructional theories employed in the program. Unless the gatekeepers and educational administrators accept the project's content and theoretical basis, the target audience will not see it, no matter how well-written or skillfully produced it may be.

Scripting and producing are inappropriate roles for formative researchers. Like instructional designers, formative researchers should not be allowed to write scripts or to change production techniques.

Offering advice on treatments or approaches, or proposing story outlines, is acceptable, but the script must be written by the writer, and the program produced only by the studio crew. Indeed, no one, except the project leader or the executive producer, should be permitted to overrule writers and producers when they are performing their assigned roles.

Relationships. The formative researcher's working relationships also will change with the various stages of the project, but the researcher's work load remains steady throughout all phases.

Working initially with the instructional designer, the formative researcher will collaborate on audience analysis, content and task analysis, and literature searches. The utilization specialist also may be involved here, contributing first-hand information on audience learning styles and curriculum needs.

Late in Stage 1 the researcher may be asked either by the writer or the project leader to review draft scripts with target audiences or to test treatments with gatekeepers. This activity intensifies in Stage 2. Collaboration with the instructional designer and the writer to test characters, story line, and content usually occupies a large proportion of the research time.

Toward the end of Stage 2, some experimentally produced segments may be available for testing. Usually executed by the production crew to the specifications of the researcher, writer or designer, these segments probably will focus on special production techniques, particular instructional content or theoretical style, or variations in characterization or story line. The researcher may also be called upon to investigate longer-term developmental ideas. Through both types of activity, the researcher becomes more closely related to the producer/director as materials begin to come from the studio or editing rooms.

During Stage 3, much of the research is directed toward testing program segments or experimental pilots. Test results are reported to the project leader, who communicates them to the producer/director. During this stage, the instructional designer and the writer work less closely with the researcher, but the test results may affect their work, especially if these call for redesign or rewrites.

When the production phase is completed, the researcher will move on to work with the utilization specialist. Although their work touches at many points throughout the course of the production, the major work within utilization comes after the project has been taped and the nonbroadcast materials (on which the researcher also will have worked) have been completed. In agencies where utilization people are qualified and prefer to do their own field research, the formative specialist should advise on research design and instrument creation. The researcher also should be available to help analyze the data.

Some formative researchers change hats to design and conduct the summative evaluation on the effectiveness of completed programs and their support materials. This may create a conflict of interest, however, if the purpose is to evaluate the overall success or failure of the project's objectives. In such cases, an outside agency perceived to be free of vested viewpoints should carry out the research.

The keys to a good relationship between the researcher and the project team are objectivity and honesty, mediated by tact and sensitivity, and backed by the researcher's refusal to write or produce any part of the program. The researcher who consents to write or produce moves from scientist and consultant to artist and competitor and sacrifices effectiveness as an objective interpreter of research and evaluation.

New Techniques in Formative Research. Traditional methods for data collection in formative research—pre- and post-test techniques, interviews, and case studies—continue to be employed most often. These methods are the foundation, bricks and mortar of the researcher's professional activities. They are rarely—perhaps never—to be discarded in favor of the latest, and not necessarily proven, techniques or technologies.

Nevertheless, a number of interesting formative research techniques, originally created for *Sesame Street* by CTW, have been adopted broadly and further improved upon by various researchers in recent years.

- Distractor Research. This innovative formative research technique involves showing program segments while distractors—slides and other stimuli—are presented to the target audiences. Researchers measure degrees of attention to the program and levels of distraction caused by the non-program stimuli. Program segments are rated on the basis of attention-holding characteristics, and a graph showing the rise and fall of apparent appeal can be charted.

Variations of the distractor technique include the use of competing programs, simulated conversation between "planted" subjects, toys, books, and other desirable leisure activities, telephones, and radio programs and records. Distractor research is based on the principle that the program

that effectively can attract and hold viewer attention can do so while overcoming the negative effects of other potential sources of amusement or interest. Recent distractor studies also have researched audio and visual techniques aimed at recovering lost viewer attention.

• Laboratory Techniques. Laboratory-based studies of such variables as eye movements and galvanic skin response (GSR) have been conducted to address patterns of attention and to measure arousal factors resulting from viewing different types of program formats. These include sophisticated techniques for assessing the attention-holding and cueing characteristics of the audio and visual components of ITV developed by O'Bryan,[3] Mock,[4] Baron,[5] and others. Eye movements are recorded while viewers watch programs or react to selected experimental segments. This research influenced the layout and design of the instructional content in such programs as *Readalong* (Ontario Educational Communications Authority [OECA]) and *The Electric Company* (CTW). The results have informed the placement, size and movement of graphics, the mean time for displaying materials for maximum viewer perception, the speed with which viewers can read or comprehend visuals, and theoretical questions such as necessary orientation time to new visuals, attention loss and retrieval, and auditory versus visual cueing.

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[3]K. G. O'Bryan, "Cues and Attention to the Visual Display in Children's Television," *Journal of Educational Television* (1977), 3:42-45.

[4]K. Mock, "The Relationship of Audio Visual Attention Factors and Reading Ability to Children's Television Viewing Strategies," Ph.D. Dissertation, University of Toronto, 1975.

[5]L. Baron, "The Eye Movement Patterns of Children Viewing Static Versus Moving Stimuli and the Relation of These Eye Movements to Field Articulation and Reading Ability," Ph.D. Dissertation, University of Toronto, 1978.

• Audience Reaction Monitoring. Two major breakthroughs in audience monitoring have occurred recently. One is the QUBE system, developed and tested by Warner Communications in Columbus, Ohio. The other is an audience response analyzer created by CTW and OECA. Both attempt to measure real-time audience responses to a telecast program, and both present multiple response possibilities to the viewer whose reactions to the program are computed and displayed while it is in progress.

Of the two approaches, QUBE is both the more flexible and the less obviously experimental. The QUBE system operates from within the viewer's home and feeds back to a central computer. Programs that are to be placed on-air can be accompanied by built-in test questions directed to different viewer groups, and answers may subsequently be used to change the program to suit either majority or minority demands. Broadcast to sample audiences, test programs can be monitored using viewers in their homes as easily as using laboratory subjects in a studio situation, but without the problems caused by experimental pressures and conditions.

The CTW/OECA model, more of a laboratory-based audience analyzer, is essentially a home-use computer attached to a television monitor. Its value as an assessment tool lies in researching audience-holding capacities of programs, and its computational flexibility can handle most data collection questions currently being asked by ITV formative researchers.

• Software Techniques. Software developments in formative research have centered on observational analysis in which viewers are monitored against checklists of responses as they watch programs in whole or in part. The technique of observational analysis, developed in the applied psychology and counseling departments of several universities, has been used in a number of formative research projects.

The essence of the observational analysis technique is a segment-by-segment recording of the viewers' body and facial responses as they watch the programs. These responses are then matched to specific elements in the program. If a segment is designed to be humorous, the viewer should display some laughing or smiling reactions to it. If the program requires concentrated attention to the instructional component, observations by the analyst of the viewer's face and eyes as he or she looks at the screen can indicate the level of concentration. If the audience viewing the program is videotaped, a split screen can provide real-time comparison of viewer reactions to the program's content and format.

Although new formative research techniques appear whenever major projects are undertaken, most recent trends have been toward the use of personal computers as data collectors. This tends to mechanize the procedure and to remove much of the recording and computational error that may accompany action research. The researcher's experiences in media and human learning, however, should always serve as the filter for formative research results. Additionally, acting as the surrogate for members of the target audience, the formative researcher should try to understand the data through their eyes and ears and through their responses.

Before moving on from the research roles in the project team, it is useful to comment on the activities of the program researcher, a different type of information gatherer referred to earlier. A good program researcher will have many ideas on the relative reliability of information from other sources, especially when it is matched with other specialists' information.

A program researcher's knowledge of dress, setting, music and manners, accepted well enough by most project teams when historical productions are in progress, is sometimes ignored in contemporary programs. Since almost

all ITV is designed for use over several years, programs risk becoming dated by changing styles of dress and habit as well as of dialogue, music and production technique. Anticipating styles and trends, the researcher can prolong the appropriateness of both contemporary and historical programs to lengthen their profitable use.

The program writer and the program researcher ideally work as a closely knit pair, the first creating the program accurately and effectively from the information provided by the other. The producer/director, the instructional designer and/or the project leader may join the writer/researcher team from time to time in the early stages of development, but less and less frequently as the project develops. When the final script has been approved and production begins, the researcher will collaborate more with the producer/director than with the writer.

Many researchers are, at heart, writers and directors. When researchers try to create rather than feed the writer's or the director's ideas, they have crossed the fine line between advice and direction and should be replaced.

The Utilization Specialist

At first glance, utilization, which deals with the use of completed programs and materials, may seem far removed from production. Based on this misconception, members of the project team may fail to meet with utilization specialists during the early stages of program development.

Characteristics. Some utilization specialists are former teachers; others have a promotional and/or marketing background. Their familiarity with the regional educational marketplace may extend beyond it to the state or nation as well. An excellent source of information on current educational politics, they can help set up the contacts needed to facilitate research on the instructional design.

A key characteristic of top-line utilization specialists is a comprehensive knowledge of the current viewing tastes and expectations of the target audiences and their gatekeepers. Their awareness of the past performance of other productions gives them a background essential to assessing needs and projecting utilization patterns.

Many utilization specialists are very practical. Able to design and present workshops for potential program users, they also are strong in ITV scheduling, off-air taping and re-use, videotape distribution, and promotion and marketing techniques. Characteristically attuned to the needs of education officials and administrators, utilization specialists are equally sympathetic to classroom teachers' problems with ITV and, thus, can often control the production staff's wilder flights of fancy. Most importantly, the utilization specialist understands and can sometimes forecast classroom practices, materials, needs and problems, and can relate them to production techniques.

Roles. A knowledgeable utilization person presents a variety of educational and marketplace information to the project team. Information on a system's current utilization patterns, indicating which groups of users are interested in which types of programs, can be most useful when format decisions are being made. Are dramas and entertainment programs acceptable, or are educators demanding more formal programming, such as narrative or dramatized documentaries? What is the demand for support materials? What is the extent to which a program needs to be self-sustaining?

Insights into why and how previous programs in the same area were accepted or criticized should interest the project team. Utilization specialists can describe the nature and availability of similar or competitive programs currently used in schools. They also should be able to report on any significant negative reactions from administrators or buyers

on the proposed project. An important activity of the utilization specialist is developing support materials and promoting the use of the finished programs. Workshops for educational agencies involve describing available programs and engaging the participants to learn how to use them best in the classroom.

Of the two types of utilization workshops, one is directed toward the administrators and senior staff to ensure that they are committed to the programs and will support their classroom use. This may require encouraging administrators to buy and use the programs or to provide necessary equipment. The second and more valuable workshop suggests ways classroom teachers can integrate both broadcast and nonbroadcast materials into the curriculum.

The utilization specialist is at the front end of the marketplace but at the back end of production. The utilization specialists the author talked to considered establishing finished programs in school systems to be their most important role. They suggested the following strategies were useful in accomplishing this task: Design a special teaching videotape to provide a synopsis of the series. A section of the tape showing teachers using broadcast and nonbroadcast materials effectively can motivate discussion about integrating ITV in the classroom.

Make maximum use of limited funds and time for utilization through teacher-run workshops. A key audio-visual person in each school is trained to use project materials at a leader's workshop. The leader, in turn, provides a workshop for the teachers at the local school or in the region. This "master teacher" approach, used in Canada and in certain sections of the U.S., involves gatekeepers directly in the project. Its weakness lies in the gradual dilution of the instructional design as it filters from one presentational level to the next.

Have the instructional designer, the utilization specialist, and the researcher collaborate on a Teacher's Guide. The

guide should clearly interpret the goals and objectives of the program and contain other relevant information, such as the relationship of the program to the curriculum, questions and content information for teachers introducing and reviewing the program, and sources of information beyond the scope of the series. The utilization specialist could design a plan to integrate the teacher's guide with a student's workbook, which, along with other nonbroadcast materials, would comprise a kit for classroom use.

Program promotion is another important role of the utilization specialist. Telecast promotions of in-school programs tend not to reach their intended marketplace as effectively as print materials. Flyers, brochures and pamphlets that get directly into the hands of teachers telling them about specific series are more useful.

It is often the utilization specialist who must develop these materials, and in a manner that will quickly and succinctly provide the needed information. Normally the items developed are no more than simple fact sheets containing a series overview and synopsis of any successful research or evaluation.

The goal is to interest the prospective user into previewing the series and incorporating the programs into the relevant curriculum.

Promotion sometimes entails producing on-air promotional spots for the series. If poorly constructed or weakly produced, these may not generate interest. Assertive utilization specialists have developed promos tagged onto the end of successful programs used in the schools. Because many teachers switch off the set the moment the credits begin to roll, these tags may not be seen. Although not commonly done, consider a "commercial" break in heavy-use ITV programs to promote upcoming series.

In the arsenal of promotional devices is the use of symposia, teachers' meetings or conventions to display the latest programs and materials. Major gatherings of teachers and

educational administrators can provide an excellent opportunity to convince gatekeepers to try ITV programs.

Presenting new programs to buyers representing broadcasters' associations and major consortia is another utilization activity that affects the eventual success of the project. Meetings of regional and national ITV agencies offer excellent formal and informal showplaces for programs and support materials.

The role of the utilization specialist is particularly important to the project team, because the best efforts of the writer, instructional designer, researcher and producer will go for naught if the programs are not used. Many good educational series are unsuccessful because of inadequate, insensitive, or nonexistent utilization strategies.

Relationships. From the outset of the project, the utilization specialist has a major role to play. It is the utilization specialist who can provide the "front-line profile"—what format works best for what target audience, what teacher preferences are in terms of content and format needs, what does and doesn't work. If the utilization person is involved from the beginning, then the producer, instructional designer and writer are better-equipped to create a solid and widely used product. In turn, this collaboration can provide the utilization specialist with ideas for effective use of the series.

Working with the researcher in Stage 1 (conception and first draft scripting), the utilization specialist can identify administrators, principals and teachers for the researcher and the designer to contact to determine potential interest.

In Stage 2 (final scripting), the utilization person can help meet some of the writer's needs. Although some writers tend not to solicit advice in creating the final shooting script, it is essential in ITV that they hear from the utilization specialist. Critical information on program length, content,

and format specifications will give the program its best chance for gatekeepers' approval.

During Stage 3 (production), when the producer/director is the critical team member, there is relatively little for the utilization specialist to contribute. At this point most utilization specialists turn their attention to nonbroadcast materials. A close collaboration with the instructional designer and the researcher ensures an effective match between the on-air and print components. The utilization specialist also may be involved with the producer/director in designing and producing on-air promos.

In Stage 4 (post-production), the instructional designer, the writer, and the formative researcher will work with the utilization specialist in developing, testing, and evaluating the on- and off-air aspects of the project. The utilization person's primary role, however, is to develop promotional, marketing, and utilization strategies. The project team may support utilization by appearing at presentations and participating in workshops. The programs may be entered in competitions or festivals, or they may be written up in professional, scientific, or trade journals and magazines. Utilization strategies for teachers and gatekeepers depend primarily on workshops and seminars. Some agencies, however, present exhibits at major conferences for direct and indirect clients. The utilization specialist should be encouraged to draw on the expertise of all team members to support all such promotional and marketing activities.

New Techniques in Utilization. One aspect of utilization, much more prominent in recent years, is incorporating the techniques of commercial television advertising to produce higher-quality, on-air promotional messages.

The length, progression, and placement of promos raise serious questions, however. Some workshops have brought station promo personnel together to discuss mutual needs

and problems. Establishing awards and evaluations of promos also may focus attention on this aspect of utilization and upgrade both production quality and marketing effectiveness.

Assisting in development of on-air utilization strategies is an interesting prospect for formative and evaluative research. If time and money permit, testing content, length, sequencing and outcome of the promos can enhance cooperation between utilization and research.

The Ontario Educational Communications Authority recently invested in innovative utilization techniques beyond the usual teacher workshops. To increase adult audience participation in some programs, viewer study groups were formed, and field trips were organized to view first-hand material related to program content. For other programs, "tutor-tape academies" were developed to augment and individualize program instruction. After watching a 15-minute instructional program, viewers, following a prearranged schedule, would telephone a class tutor. With only about 15 students assigned to each tutor, students were able to ask questions pertaining to the program content and receive assignments related to the curriculum and to their individual needs. Development of a "learning systems" approach to ITV production, OECA's most recent emphasis, makes utilization integral to the project from conception through and beyond delivery.

Another utilization strategy is to distribute nonbroadcast materials commercially. Books, records, toys, and other items represent a pervasive utilization effort that reaps substantial financial return. Although it is questionable that this technique would work as well with the smaller-scale, average ITV series, it provides an interesting utilization model for projects with larger budgets.

Using less expensive strategies, many agencies have promoted viewers' clubs and associations and have sold or given away T-shirts, postcards, sheet music and storybooks.

Some have used comic books as back-up materials. Only a few have attempted to make their human or puppet performers into "stars," but the enormously successful sales of Miss Piggy and her colleagues from *The Muppet Show* should not be ignored.

In the history of ITV, utilization has not been made a budget priority, but with increased competition from home video units, decreased budgets for educational technology, and the teaching profession's more realistic expectations of ITV, the development of effective utilization strategies becomes essential.

The Writer

In large agencies working on major series, a head writer manages both staff writers and freelancers. Operating in much the same managerial capacity as the director of instructional design or as the director of formative research, the head writer becomes a project team member. As master writer for the series, the head writer coordinates writing style and content. For the purpose of the following description, the head writer is treated as the project writer charged with creating all scripts.

Unlike project team members who represent instructional or functional aspects of design—research and utilization—the writer is a creative specialist, charged with transforming the proposed content into a television program, a task so critical to the success of the undertaking that it is axiomatic that a good program cannot be produced without a good script.

Characteristics. Above all, writers are individualists, sharing few consistent traits that serve to identify them as a group. Many seem to prefer freelance rather than staff work. A number of skills relevant to ITV writing, however, indicate likely styles writers may adopt. Writers with a strong back-

ground in education, for example, tend to favor the documentary or interview program formats. These writers are unlikely to venture readily into dramatic forms, but can skillfully write voice-over or on-screen-host narration or interview material. Instructional designers find such writers easy to work with, and their work is often highly acceptable to gatekeepers. They tend to be less successful with target audiences, however, and often have difficulty with producer/directors coming from commercial television.

Other writers, by contrast, come from university, college, and film and television school training programs. Somewhere in the middle ground between ITV and commercial television, this group prefers a mixture of writing to the target audience and writing to the format and medium. If their early experience has been in ITV, they will move more to the instructional end of the continuum; if they have had commercial experience, their interests may lie in writing "good television," and their tendency to write for production effect rather than instructional content may pose something of a problem for the instructional designer.

Another type of writer comes from the "real world" of television and radio. These experienced and often confident writers are sometimes careless about, and uninterested in, instructional design and are more concerned about the program's "impact" on target audiences. Such writers delight commercial television producers, sometimes irritate instructional designers, and may infuriate utilization specialists. When the project leader hones their comprehension of the instructional potential of the television medium and channels their creativity, they can become very effective.

Successful professionals cite the following characteristics of top-flight ITV writers:

- A readiness to dig into the instructional design to find a "metaphor" (the basic idea around which the program is carried) from within rather than outside the content.

- A well-developed knowledge of, or an intense desire to discover, the workings of the instructional design, curriculum, target audiences, and delivery systems crucial to the program.

- A commitment to the art and science of television production, leading to an awareness of the potential of the latest technology as an instructional tool.

- An ability to go beyond "wordsmithing" to create visual imagery that implies perceptive understanding of the aural and visual potential of television. Less effective ITV writers tend to be adequate narrative writers, unattuned to the power of television visuals. As such, they are good print writers and may be effective on radio, but failing to use television's potential, they tend to leave the visual creation of their script to the producer/director.

- An ability to work with other professionals. The ITV writer—unlike the commercial counterpart—will have the instructional designer, the researcher and a number of others at his or her elbow. Working for many masters (or critics) can be difficult; satisfying all of them may be almost impossible. Indeed, the person who implements the script (the producer/director) may have had relatively little impact on it before the shooting stage and at that point may criticize its "producibility." Unfortunately, the many interests represented in a project team can result in a group-produced script that satisfies no one completely, but is "agreed to" by all. Because such scripts are rarely effective, the writer needs to accept, filter, refine, and reject advice while developing the script.

- A readiness to refine and amend personal judgments about how the script should look. Instructional television is a cooperative venture; everyone contributes to the development of treatments, scripts and materials. Some would like

to write and produce the programs themselves; others want these tasks done to their particular specifications. The writer cannot afford to let the script be written by others, but must be able to use their good ideas insofar as they capture the program's educational objectives.

- A desire to see the project through. Some ITV writers hand over their scripts when the project reaches the shooting stage; as a result the project is robbed of full staff support. When rewrites and other inevitable adjustments are left to less skilled substitutes, some of the originator's creative magic is lost. Thus it is preferable for writers to stay with the project throughout production. This is likely to be automatic in series programming, even if a number of different writers are involved.

Roles. The writer has one essential role: to write a producible script that is more than words. It must contain the writer's best ideas on all aspects of the final product. In a dramatic format this includes a detailed description of the settings, cast characterizations, costuming, the relation of sound and music elements, shot directions, and the critical movement patterns throughout the teleplay. It is essential that the script carry the instructional content, hold the target audience, please the gatekeepers and meet the project goals and objectives.

To fulfill that role, the writer typically will proceed as follows:

- Working primarily with the instructional designer and the researcher, the writer prepares a treatment that outlines the format, characters, style and content of the script (or scripts in series production), and submits that treatment for project team discussion. Subsequently, the writer may revise the treatment.

• When the treatment is approved, the writer develops a first-draft script for discussion and research. The writer also may script experimental segments for production and testing at this stage.

• The writer then rewrites the final shooting script. Sometimes requiring two or more drafts, this part of the process is most often neglected by writers in smaller or less experienced ITV production groups. Almost all ITV professionals feel strongly that the writer should incorporate all necessary visual and audio directions into a fully detailed script. Although the producer/director may change many of the script's features, the shooting script must be as fully developed as the writer is capable of making it.

• The writer must be readily available for on-set rewrites and talent consultation during production. As the only person who fully understands the script, the writer should be expected to rewrite it. Because some writers do not work well with actors, it is not generally advisable to allow them to interact with the cast. Nevertheless, they can assist the talent director in interpreting the subtleties and nuances of the script.

Finally, the writer assists in the production of nonbroadcast and support materials.

Relationships. The writer's relationships with the project team were described earlier. The brief summary below indicates how relationships change as the project progresses.

In Stage 1 (conception to first draft), key interactions take place between the writer, the instructional designer, and the program researcher. Secondary contacts occur with the utilization person and formative researcher, and the first meetings with the producer/director are held.

During Stage 2 (development of the shooting script), increased work with the producer/director replaces that with

the utilization personnel. Contact with the instructional designer and the program and formative researcher will still be considerable, however. At this time, the writer should become acquainted with the capacities of the studio facility and its crew.

Beginning with Stage 3 (production), relationships with the producer/director and the studio crew become key. At this time, too, the formative researcher discusses test results that may interest the writer, especially in series production.

In Stage 4 (postproduction), the writer consults with the utilization personnel and may work with the designer to develop support materials.

New Techniques in Writing. However more professional and creative script writing for ITV has become since the advent of *Sesame Street* and other landmark ITV series, techniques still depend upon the writer's creative ability. What has changed are the enormous technological developments of the last decade, which have put relatively inexpensive and effective visual communication tools into the writer's hands. The writer should become acquainted with and exploit these facilities. ITV production houses as well equipped as the biggest network studios have replaced the single black and white camera with unwieldy turrets and lenses capable of only limited effects and production values.

In creating *Readalong,* OECA's ITV writers developed some notable techniques. Adult characteristics were matched to puppets but directed to children through intermediary child actors. The scripting called for scientifically timed presentations and graphic placement. It also related sets and limbos to content, and attempted to match the target audience's cognitive styles and learning levels to the materials. Following current models, the writing honored gatekeepers' priorities while maintaining audience appeal.

A system of writing not yet vigorously employed in ITV is the old "bodyman" technique. A "bodyman" is a pro-

fessional writer who takes a finished script written by a competent writer and creates a better script from it. "Bodymen" are not merely rewriters; their tasks can range from minimal tightening and improvement to resetting part of the script—even to recreating all of it, should that become necessary.

The technique offers interesting possibilities for ITV series production, especially when a number of writers are involved, or when the head writer prefers to produce basic, rather than fully executed, shooting scripts. Closest to this approach is AIT's "script doctoring" in its *ThinkAbout* series, although AIT does not use a professional "bodyman" to do this.

The Producer/Director

The producer/director is central during all project production phases. As noted earlier, the producer and director may be separate people or one person. The producer also may be the project leader, especially in the more traditionally organized production houses. A studio director is less often appointed project leader, although there is no particular reason why the director should not lead a project. The team member acting as producer/director, however, has a number of specific characteristics, roles, and relationships. Should the same person serve as project leader, the appearance or presence of conflict of interest should be avoided.

Characteristics. To be able to characterize the producer/director is to predict the outcome of production. Of the many types of television producer/directors, two stand out. The first, the educationally oriented instructional specialists, tend to want to provide realistic programming with a high educational content. Such producer/directors often are former teachers or administrators with previous experience

in audio/visual production who have moved into ITV. They listen closely to the instructional designer, understand the classroom teacher, and grasp curriculum needs well.

These producers tend to be less interested in using the medium in an appealing and attention-holding way and less skillful in doing so. They usually are better producers of documentaries and narrative formats than of dramatic or magazine styles. Some of them, however, are quite adept at direct interview and host/guest formats and create educationally effective programs in these areas.

The second type are producer/directors who have come into ITV from commercial television or college and university radio, television, and film schools. They usually are less sensitive to the demands of instructional design. Their desire for a mass audience is frequently accompanied by giving higher priority to production values and studio techniques than to instructional content.

The needs of the second type of producers are best met by writers skilled in dramatic programming. They prefer to explore and exploit media technology to give the production a new "look," rather than to ensure a good "take" of the instructional content. When pressed, these producer/directors would argue that audience appeal is more important than instructional content, because without appeal, the program can have little success with its target audience. While they probably are correct in this assessment, they risk alienating gatekeepers who may consider their approach trivial. This, of course, is the continuing dilemma of ITV.

Both types of producer/directors like to be completely in charge of the studio crew and do not brook "interference" from other team members in the production phase. Probably most effective is the producer/director who both understands and accepts the necessity of educational goals and remains keenly interested in creating a good-looking program, shot with technical skill and accuracy and employing high-level production values.

Roles. The producer/director is in charge of all of the program's direct production elements. All production personnel concerned with taping the show report to the producer/director through an established chain of command. These personnel include postproduction crews—including videotape and film editors—and any other technical personnel charged with bringing the program from the taping stage to mastering.

Many producer/directors see themselves as the pivotal person in the project team, for without them, of course, there can be no program. In ITV, however, this primacy should pertain to the studio work, since the purpose of the production is to serve the needs of a particular audience with specialized instructional content rather than to provide television programs *per se*. Because failure to clarify essential differences between the producer/directors and instructional designers can cause difficulties, it is important that the project leader clearly define the tasks and roles of each.

The primary roles of the producer/director in ITV are likely to include the following:

- Supervising the execution of all production, from accepting the final shooting script to delivering the master tape.

- Integrating various supporting agencies involved in the production, such as animation houses, graphic arts suppliers, special effects, talent agencies, credit and titling services, and others directly connected with the program taping.

- Providing experimental segments and/or pilot programs for formative evaluation.

- Creating promotional on-air materials for utilization specialists.

- Creating promotional off-air materials, such as videotapes or sound recordings, that require studio production.

- Advising other team members in production areas, such as techniques, formats, talent, and style.

Roles that the producer/director must not take are the following:

- Attempting to rewrite the script in the absence of the scriptwriter. Although a producer/director may be sensitive to the relationship of the script to the programming, it is especially important in ITV that the writer write and the producer/director produce and direct.

- Making content decisions for the instructional designer. Whenever a segment agreed upon by the project team needs to be changed by the producer/director because of studio requirements or talent difficulties, the designer should be consulted to ensure that the changes will not affect the instructional content.

- Contributing to the formative research of program segments. It may be difficult to maintain objectivity when conducting research on personally produced and directed work.

Relationships. The producer/director is a catalyst between media technology and the writer's creativity. As such, his or her special brand of creativity lies in selecting details in lighting, sound and other production techniques best suited to the script to hold the audience and deliver the message.

Producer/directors must relate to all project team members. They can do so easily enough if they recognize that the role of the writer, academic specialist, instructional designer, and researcher is to provide the best possible content upon which to build the programs. Their most critical activity occurs in the production phase, but clearly they are important in all aspects of the project, through to final mastering of the finished program.

Producer/directors who commented on their relationships with other team members offered the following suggestions:

- Avoid taking personally the comments of consultants and researchers; these specialists are rarely well informed on production problems. Their comments and research data, offering a different perspective, indicate the effect of the program on people who have an interest in the program's success, but who are not directly involved in its mechanics. When research data are properly collected, for example, they can represent a surrogate of the eventual target audience. Research results can suggest useful production changes in the program's instructional or audience-holding aspects.

- Understand the critical role of the instructional designer who bears the responsibility if the program fails to reach its educational goals. The producer/director, therefore, should seek to understand the design and to collaborate closely with its designer. Nevertheless, the instructional designer should not dominate the production; a clear agreement about respective responsibilities should be sought as early as possible in the project development.

- When working with writers, ascertain how the writer visualizes the program, scene-by-scene, and encourage the writer to work out a detailed shooting script. Involving the writer in discussions with studio team specialists familiarizes him or her with the power and techniques of the medium. A well-informed writer can be especially valuable in set design, talent direction, shot selection and the design of lighting and effects.

- Without being intimidated by writers, use them to do instant rewrites or to modify talent directions when a segment is not working well in rehearsal. Insist that directions

bridging shooting segments and giving basic camera and sound directions are clear, and urge writers to be present on the set or in the control room as consultants during taping.

- Use the formative researcher to check out controversial questions, especially those dealing with casting, story line, and presentational techniques, but make final production decisions yourself.

- Collaborate closely with the utilization person. No matter how artistically well-done the programs are, they must be used by their target audiences. Be prepared to produce high-quality promos geared to what the utilization specialist understands will attract gatekeepers.

New Techniques in Production. The best ITV producers, including those who contributed to this manual, tend to have advanced technical knowledge of the hardware potentials of television production. Consistent readers of journals dealing with new technology, they have a good grasp of the functional power of every facet of the medium. By contrast, very few claimed to have given much thought to how technology functions to mediate human learning. Fewer still have examined why some ITV models work effectively when others do not. Closer attention to such variables will necessarily characterize effective producer/directors in the future.

Conclusions

The project team approach to ITV production, neither new nor exclusive, offers functional and effective use of the talents of educators, academic specialists, researchers, and production personnel. Who should lead the team and the extent of each specialist's "turf" cannot be stated absolutely. The way each project defines its approaches and its roles will differ. When management skills can be divorced from parochial interests, any member of the team, except the formative researcher whose role demands freedom from decision making, can lead it. For most agencies, appointing the producer as team leader (except if he or she is also the director; conflict of interest and perceptions of power should be avoided) is probably both functional and efficient. Instructional designers can lead, but they should not also write, research, and/or produce and direct.

Wisely, writers generally seem not to lead projects, since good writing generally requires single-minded effort. Structurally, however, there seems no real reason why a writer could not lead a project, beyond the stand-off that would result from the remainder of the team's rejecting any or all of the scripts.

Effective use of the project team approach depends on defining and mutually respecting each member's specialty. This suggests that writers do their best for the team and the project when they concentrate on writing, and formative

researchers are best employed doing formative research. By the same token, instructional designers, academic specialists, producers and directors, and utilization specialists should respect the boundaries of their roles.

Most destructive conflict is generated by mixing roles. Creative conflict, on the other hand, arises naturally when team members with competing expertise ply their particular trades. This conflict is often the spark that ignites enthusiasm, challenges inventiveness, and gives life and vigor to the team and the project. Thus, the interplay of expertise, the management of conflict, and the integration of instruction and dynamic production are the foundation on which an effective ITV project team is built and upon which television productions committed to the "learning biz" are created.